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| 7812 7590 07/09/2008 SMITH-HILL AND BEDELL, P.C. 16100 NW CORNELL ROAD, SUITE 220 BEAVERTON, OR 97006 | | | | |
| EXAMINER VELASQUEZ, VANESSA T | | | | |
| ART UNIT 1793 | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Office Action Summary

Application No.

10/599,477

Applicant(s)

LUNNER ET AL.

Examiner

Vanessa Velasquez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
4a) Of the above claim(s) 21-28 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 15-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date Apr. 10, 2007
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Restriction

Restriction is required under 35 U.S.C. 121 and 372. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 15-20, drawn to a method of producing a fluxing agent.

Group II, claims 21-24, drawn to a fluxing agent.

Group III, claims 25-28, drawn to a method of producing steel.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Unity exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding claimed technical features. "Special technical features" are defined as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art" (Rule 13.2). A review of WO 03/018850 demonstrates that the claimed special technical feature (i.e., a fluxing agent comprising a hydroxide sludge containing a fluoride compound) does not define a contribution which each of the

inventions, considered as a whole, makes over the prior art. Thus, lack of unity becomes apparent *a posteriori*, i.e., after taking the prior art into consideration. Accordingly, the prior art of the record supports restriction of the claimed subject matter into the aforementioned groups.

Applicant is advised that for the reply to this requirement to be complete, it must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Joint Inventors

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Election by Telephone

During a telephone conversation with Mr. John Smith-Hill on June 24, 2008, a provisional election was made with traverse to prosecute the invention of Group I, claims 15-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-28 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Status of Claims

Claims 15-20 are presented for examination. Claims 21-28 are withdrawn according to the telephonic election on June 24, 2008.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been placed of record in the file.

Information Disclosure Statement

One (1) information disclosure statement (IDS) was received on April 10, 2007. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

Claim 17 is objected to because of a typographical error. There is a missing closed parenthesis in step (c) of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112, Second Paragraph

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites the limitation "the furnace." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eklund et al. (WO 03/018850 A1) in view of Lintz (US 3,276,860).

Regarding Claim 1, Eklund teaches a method for treating pickling liquid from steel manufacturing processes (page 3, lines 5-11). The pickling liquid is neutralized by the addition of an alkali to produce a hydroxide sludge that comprises CaF_2 , a fluoride-containing compound (page 5, lines 13-21). Although the term "flux" is not used, the

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sludge product functions in the same manner as a fluxing agent, as it is taught by Eklund that the sludge can be used in the smelting of steel (production of steel via extraction from ore) to aid in the separation of silicon, oxides, and fluorides from the iron melt into a slag phase (page 5, lines 1-6).

Still regarding Claim 1, Eklund does not teach calcining the fluoride-containing hydroxide sludge fluxing agent. However, Lintz teaches that fluorspar (CaF_2) fluxing agents are heated to temperatures below their melting point (i.e., calcined) to dehydrate and strengthen them (col. 2, lines 14-22). Therefore, it would have been obvious to one of ordinary skill in the art to calcine the hydroxide sludge of Eklund by heating the sludge in the manner taught by Lintz because such a heat treatment removes moisture and enhances the mechanical strength of the flux.

Regarding Claim 16, Lintz teaches that the fluorspar flux is sintered at about 1200°C or greater (col. 4, lines 4-7), which overlaps the claimed temperature range. The overlap between a range disclosed in the prior art and the claimed range is sufficient to establish a prima facie case of obviousness (MPEP § 2144.05 "Overlap of Ranges").

Still regarding Claim 16, Lintz is silent as to carrying out the sintering process in a stationary furnace or rotary kiln. However, it would have been obvious to one of ordinary skill in the art to sinter in a furnace, as furnaces are conventional means for heating products in an enclosure.

Regarding Claim 17, Lintz does not expressly teach drying in the manner recited in steps (a) and (b) of the instant claim. However, Lintz teaches raising the temperature

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to at least about 1200°C to effect sintering (col. 4, lines 4-7). Therefore, in the sintering step, the temperature would necessarily have to pass through the claimed temperature ranges of 150-200°C and 600-900°C in order to reach a temperature of 1200°C.

Regarding Claim 18, Eklund fails to teach a calcining and melting step. However, Lintz teaches that the flux is heated to a temperature near 1320°C, the melting point of the CaF_2 , to ensure that the flux briquette is strongly sintered (col. 2, lines 24-28, Example I; col. 2, lines 47-51, Example IV). Therefore, it would have been obvious to one of ordinary skill in the art to heat the sludge of Eklund to a temperature of about 1320°C in order to enhance the mechanical strength of the sludge as taught by Lintz.

Still regarding Claim 18, Lintz is silent as to carrying out the melting step in a converter. However, it would have been obvious to one of ordinary skill in the art to melt in a furnace, as converters are conventional means for handling molten metal.

Regarding Claim 19, Lintz does not expressly teach drying in the manner recited in steps (a) and (b) of the instant claim. However, Lintz teaches raising the temperature to near 1320°C (col. 2, lines 4-7). Therefore, in the melting step, the temperature would necessarily have to pass through the claimed temperature ranges of 150-200°C and 600-900°C in order to reach a temperature of 1320°C.

Still regarding Claim 19, Lintz does not expressly teach the discharging and cooling of steps (d) and (e) of the instant claim. However, the heating process of Lintz is drawn to strengthening the fluxing agent. The emphasis on the mechanical strength of the flux implies a rigid (i.e., solid) flux. Therefore, the cooling step is implicit in the

process of Lintz. In order to retrieve the sludge, it would necessarily have to be discharged from the furnace.

Still regarding Claim 19, Eklund discloses that hydroxide sludge is preferably crushed or granulated before using it in the manufacture of steel (page 2, lines 11-12).

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eklund et al. (WO 03/018850 A1) in view of Lintz (US 3,276,860), and further in view of Klinge et al. (US 4,252,462).

Regarding Claim 20, Eklund in view of Lintz do not teach gathering the hydroxide sludge at a landfill. However, Klinge teaches a landfill design for collecting wastewater sludge (Abstract). The sludge may comprise neutralized waste from pickling liquor (Klinge, col. 5, lines 38-51). There is also a drive to reduce the amount of liquid waste disposed in the environment (Klinge, col. 1, lines 11-15). Thus, it would have been obvious to one of ordinary skill in the art to utilize the sludge from a landfill in the treatment processes of Eklund in view of Lintz in order to reduce the amount of liquid waste contained in landfills.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is (571)270-3587. The examiner can normally be reached on Monday-Friday 8:30 AM-6:00 PM ET.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

/Vanessa Velasquez/
Examiner, Art Unit 1793

